

## CHAPTER 2

# QUARTERLY DECISIONS

The management of each simulated firm must make a number of decisions for each quarter of simulated operations. This chapter summarizes the decisions that are required and provides instructions for their entry on the decision form as well as indicating certain limits and restraints that have been placed upon specific decisions. Some restraints are a result of the limitations of the simulation model, and some are imposed to add realism to *The Business Policy Game*. More detailed information about each type of decision will be provided in later chapters of this manual to assist participants in formulating their strategy and decisions. Blank decision forms are found in Appendix D. These should be detached, and one copy submitted to the simulation administrator for each decision. You and your teammates may need to share some of these and other blank forms.

### IMPORTANT NOTE

If you submit your decisions on a floppy disk, also submit a written copy of your decision form. If your disk becomes damaged or, for some reason, the computer is unable to read the disk, the simulation administrator will have a hard copy of your decision and it can be re-entered. Otherwise, your last previous decision may have to be used for the current decision period.

The simulation administrator will specify the date, time and place where each simulation decision set is due. Timely submission of simulation decisions (on computer disk and/or on the decision-entry form as specified by your administrator) is **extremely important**. If your decision set is not submitted promptly, the processing of the simulation will be delayed, causing lost time and possible hardships for your competitors and the simulation administrator. Failure to submit a decision set by the appointed time will most likely result in your most recent previous period's decision set being used for the current quarter, with adjustments for decisions that may not be le-

gal for the current quarter (*i.e.* constructing another plant in the same area would be outside of the constraints of the model).

The mode of data entry will be specified by the simulation administrator.

1. You may be asked to enter your own decisions via personal computer, saving them on a floppy disk. Each team should create a Decision/Data Disk which is a formatted, blank disk with the following label:

BUSINESS POLICY GAME

Decision/Data Disk  
Company c, World w  
Company Name

where *c* is your company number and *w* is your world number. The disk must be initialized by the simulation administrator with several data files necessary to run the program. The decision set is entered by using the BPG computer program. See Appendix A for installation instructions and program documentation.

2. You may be asked to enter your decisions via a local area network (LAN) using the decision-entry program. Decision data then would be saved on the LAN system. See Appendix A for program documentation. The program may have been installed on the system already.
3. The administrator may arrange to have all data entered centrally from information that your firm submits on decision forms from Appendix D. Completion of the decision form is discussed later in this chapter.

After the simulation has been run on the computer, you will receive a set of reports (see Appendix C for an example) showing the results of your operations and those of your competitors. The report may be given to you in the form of a computer printout or you may be asked to print it yourself from a floppy disk or from the computer system that you used to enter the decisions.

If the first or second mode is utilized, you will be told where to find microcomputers which can be used to enter your decision set or you may use your own computer if it is compatible with the one used to run the simulation. Follow the instructions for using the decision-entry program, found in Appendix A. Don't forget to submit your decision form to show the values that have been entered. This will guard against Murphy's law: "If something can go wrong, it will."

If the third mode is specified, submit your decision forms by the specified time for data entry. Invalid entries may be edited by the simulation administrator and/or the computer program. Even though adjustments to invalid entries may not reflect your intentions, the decisions of the

administrator are not subject to appeal. **You** are responsible for the implementation of your decisions by correct entries on your decision form.

### Decision Form

Data are entered to the computer directly from the decision form. **Always** be sure to fill it in completely prior to data entry. Then check it carefully. Incorrectly completed forms may result in incorrect data entry and thus simulation results which are somewhat different from what your firm anticipated. We suggest that you refer to the sample decision form in Figure 2-1 as you read this chapter.

The figure illustrates the completed decision form for Company 1, which was used to generate the historical data for Year 2, Quarter 4 in Appendix C. Values for other companies were the same, except for advertising and production scheduling. In these two cases, the entries shown for Area 1 were made in each firm's home area instead. The home area for Company 2 is Area 2, and for Company 3 is Area 3. If there are more than three companies, the home areas for Companies 4, 5, 6, 7 and 8 are Areas 1, 2, 3, 1 and 2 respectively.

As you complete the decision form, be sure to enter values within the limits shown below (including a minus sign where appropriate) in each entry block. If no sign is entered, the numbers are assumed to be positive. When entering decisions with the decision-entry program, if you attempt to enter too many digits for a field, your computer may beep to indicate an error. If you enter a value outside of the limits noted below, an error message will appear in the middle of the screen requesting a valid entry. If no decision entry is made, the default value from the previous period's decision set will be used.

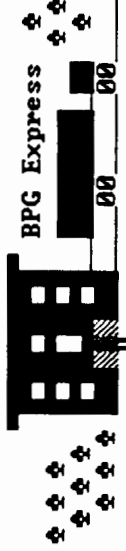
#### Company, World, Year, Quarter

Enter your Company, World, Year and Quarter numbers on the decision form, as well as your company name. If you are using the decision-entry program to enter your decisions via personal computer, check the decision-entry screen to be sure that the proper values are displayed.

Company <u>_1_</u> World <u>_1_</u> Year <u>_2_</u> Quarter <u>_4_</u> Company Name _____
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### Marketing Decisions

Marketing strategy is discussed in Chapter 5, along with additional information about each of the marketing decisions and the costs associated with them. Figure 2-3 at the end of this chapter summarizes the initial costs and expenses for *The Business Policy Game*.



The Business Policy Game, 4th Edition

DECISION FORM  
THE BUSINESS POLICY GAME, 4th Edition

Company		World	Year	Quarter	Company Name						
		Marketing			Salespeople						
	Price	Adv(000s)	Hire	Transfer	Comm	Salary	Finance (000s)				
Area 1	\$ .	\$	#	#	¢	\$	Bank Loan	\$			
Area 2	\$ .	\$	#	#	¢	\$	Bond Issue	\$			
Area 3	\$ .	\$	#	#	¢	\$	Stock Issue	#			
Sereno	Ps	Ps	#	#	¢	Ps	Dividends	\$			
							Time CDs	\$			
R&D/Training (home currency)		Sales Office Orders (000s)		Production Schedule		Capacity Adjustment			Construction		
R&D	\$	Area 1	#	Lines	Hours	Layoff	Deactivate	Reactivate	New Lines	New Add'n	New Plant
Trng	\$	Area 2	#	#	#	#	#	#	#	#	#
Model/Quality		Area 3	#	#	#	#	#	#	#	#	#
Model	#	Sereno	#	#	#	#	#	#	#	#	#
Quality	#	2nd Shift		#	#	#	#	#	#	#	#

### Price

The wholesale price of your product must be set each quarter in each of the market areas in which your firm is operating. During the last quarter of Year 2, each firm charged \$10.00 per unit for its product in each of the three Merican market areas and Ps 75 in Sereno. For price, as for all other decision variables, last period's value will be used if there is no entry for the current quarter. Company policy (and the simulation model) limits price changes to a maximum of 30 percent per quarter in domestic markets and 40 percent in foreign markets. Because the product price was \$10.00 in domestic areas during Year 2, Quarter 4, the highest price that your company may charge in these areas in Year 3, Quarter 1 is \$13.00 and the lowest is \$7.00. A price change as large as this is discouraged because of the unknown effect that such changes may have on the market. Management may specify different prices for different areas. If your price is in whole dollars, enter zeros for the cents so that there is no question of whether you forgot to enter the cents figures.

The Sereno market area price is set in pesos rather than dollars. Decimal fractions for pesos are not required. See the current exchange rate (found in each quarter's financial reports) to translate pesos to dollars and cents.

Maximum change, Areas 1 to 3:	30 percent in any quarter.
Maximum change, Sereno:	40 percent in any quarter.
Exception:	If the sales office is closed (see below) the price is 0
Limits, domestic areas:	1 to 99.99 (in dollars and cents)
Limits, Sereno:	1 to 99999 (in Pesos)

	Price
Area 1	\$ 10.00
Area 2	\$ 10.00
Area 3	\$ 10.00
Sereno	Ps 75

### Advertising

Advertising expenditures must be allocated to each of the market areas in which your firm is operating. Enter the amount (in thousands of dollars or pesos) to be spent in each area. The amount must be specified even though no change is desired, and the default values from the previous quarter will be used if you make no entry.

Limits, domestic areas: 0 to 999 (in thousands of dollars)  
 Limits, Sereno: 0 to 9999999 (in thousands of Pesos)

	Adv(000s)
Area 1	\$ 46
Area 2	\$ 40
Area 3	\$ 40
Sereno	Ps 105

### Salespeople

The number of active salespeople and the number of salespeople in training are reported by area in the Sales Force Analysis section of the Operating Information Report each quarter.

1. Hire Salespeople. To hire and begin training new salespeople, enter the number of people to be trained in each area under Salespeople-Hire. A new salesperson must spend one quarter in training in an area prior to being sent to the field to sell. Salespeople in training will be assigned automatically to their area when training is complete. No further decision entry is necessary after the salespeople are hired. If you make an entry in the following quarter, you will hire additional salespeople to begin their training period in that quarter.

Limits : 0 to 99

Salespeople				
	Hire	Transfer	Comm	Salary
Area 1	#	#	20 ¢	\$ 3000
Area 2	#	#	20 ¢	\$ 3000
Area 3	#	#	20 ¢	\$ 3000
Sereno	#	#	60 ¢	Ps 8971

2. Transfer Salespeople. If your firm desires to transfer a salesperson from one area to another, this can be accomplished by making the appropriate entries under Salespeople-Transfer on the decision form. To transfer salespeople, you should enter a negative number for the area from which the salespeople are leaving, indicating the number of salespeople you are moving out

of the area. This must be balanced by one or more positive numbers in the area(s) to which the salespeople are moving.

Your positive moves into some areas may not exceed the total value of negative moves out of other areas. To do so would indicate an increase in the size of your sales force, and an increase only may be accomplished by hiring new salespeople and training them (See paragraph 1 on the previous page). If your negative values total more than your positive values, the additional salespeople will be fired (see paragraph 3 below).

In order to limit the entries in this field to transferring salespeople (and not firing them), all individuals who move out must have a place to move to, and all individuals who move in must have come from another market area. You may transfer salespeople from several areas at the same time. However, you may not transfer salespeople in and out of the same area in one quarter. They must either go into an area or out of an area. Not both. Remember, the sum of the negative (people moving out) and the positive (people moving in) numbers must equal zero. If the value of negative entries exceeds the value of positive entries, the extra negative values will result in discharging that number of salespeople.

Transfers take place immediately. A transferred salesperson, however, may not be very effective until he or she has moved and settled into a new market area. The salesperson will, however, continue to draw a salary. In addition, the salesperson will be provided with a moving allowance paid by the subsidiary in the area from which the individual moves.

**Make sure you leave at least one sales person in each area unless you want to close a sales office.** The sales office in an area will be closed if there are no sales people remaining in the area (see paragraph 4 on the next page).

Maximum: to be transferred out: number of active salespeople  
 Subject to: the sum of positive numbers may not exceed the sum of negative numbers  
 Limits: -99 to 99

3. Discharge Salespeople. You may fire salespeople by entering a negative value for the number of people you want to fire under Salespeople-Transfer. You indicate that the salespeople are to be fired by entering a negative number in the area where they are working, with no balancing positive number in another area indicating a transfer to a new area. Thus, if you decide to fire 2 salespeople in Area 3, enter -2 under the Salespeople-Transfer column for Area 3.

**Make sure you leave at least one sales person in each area unless you want to close the sales office in the area.** The sales office in an area will be closed if there are no sales people remaining in the area (see paragraph 4 on the next page).

Maximum to be discharged: Number of active salespeople  
 Limits: -99 to 0

4. Closing a sales office. If all salespersons in a subsidiary sales office are transferred or discharged by entering a negative number under Salespeople-Transfer that is equal to the total number of active salespeople, then the sales office in that area will be closed. All salespeople that are discharged will receive severance pay. Sales executives will be discharged and will receive severance pay. The sales office will be sold to a real estate developer for and there will be no more sales in the area. Any cash balances will be transferred to the parent corporation. If there is not enough cash to meet all obligations, the parent corporation will supply it by purchasing more stock in the subsidiary—like money down a rat hole.

At the same time that a sales office is closed, you must set the following marketing decision variables to 0 in the area affected. With no sales office there will be no one available to accommodate further sales in the area.

Price  
Advertising  
Sales Salary  
Sales Commissions  
Sales Office Orders

See "Leaving and Entering Market Areas" in Chapter 5.

5. Opening (re-opening) a sales office. To open a new sales office in an area where there is none (*i. e.* the sales office was previously closed), transfer at least one salesperson from another area and hire as many salespersons as you wish to be available next quarter when sales may begin. A new sales office will be built and executives hired to supervise construction and preparation of the office. The transferred salesperson will supervise and coordinate sales training and executive orientation. Construction of the office takes one quarter, and sales may begin immediately in the quarter following the decision to open the office by transferring one or more salespeople into the area. See "Leaving and Entering Market Areas" in Chapter 5.

### Changes in Sales Force Compensation

The compensation rates for salespeople in each market area may be changed by entering the new compensation levels on the decision form. If no entries are made, default values (rates from the previous quarter) will be used.

1. Salary. The salary for each active Merican salesperson at the end of Year 2 amounted to \$3,000 per quarter. Salary for Sereno salespersons was Ps 8971. Sales salaries may be increased or decreased. Enter the total amount of the desired salary level, in dollars or pesos per quarter, under Salespeople-Salary on the decision form.

Limits, Areas 1 to 3: 0 to 9999 (in dollars)  
Limits, Sereno: 0 to 9999999 (in Pesos)



2. Commissions. Sales commissions are paid to salespeople in addition to their basic salary. Commissions in domestic areas amounted to 20 cents per unit sold at the end of Year 2. Sereno commissions were 60 centavos (Ps 0.60) per unit. Sales commissions may be increased or decreased during any quarter. Enter the new amount for the desired commission rate in number of cents per unit for Merica, or centavos per unit for Sereno, under Salespeople-Commission on the decision form.

Limits, Areas 1 to 3: 1 to 99 (cents per unit)

Limits, Sereno: 1 to 99999 (centavos per unit)

### Model Number

Enter the model number to be produced during the quarter. For Year 3, Quarter 1 the only model available is Number 1 and you are producing it at Quality level 2 (see below). The latest model number developed by the research and development department, together with the applicable labor and materials costs, will be reported in the Operating Information Report each quarter.

		STANDARD COSTS PER UNIT for Next Quarter				
		Merica Area 1 \$	Merica Area 2 \$	Merica Area 3 \$	Sereno Ps	
Model 1	Quality 2	Labor Cost	2.88	2.88	2.88	8.90
Savings Level	0	Material Cost	1.23	1.23	1.23	5.72

Note: for Quality 1 add 10%. For Quality 3 subtract 10%

Model numbers are sequential (Models 1, 2, 3, etc.). Your company's Model 2 (when it becomes available for production) will have different marketing characteristics than another company's Model 2. If a new model is available and your company wishes to put it into production, enter the new model number. Otherwise, enter the same model number that was produced in the previous quarter. If model number 4 is reported to be available, and your firm decides to introduce it, enter 4 on the decision form. Production of a new model begins immediately. Sales of the new model begin next quarter unless your firm stocks out of the old model this quarter. In that case, when all units of the old model have been sold, the new model is substituted to fill any further demand.

#### IMPORTANT NOTE

The demand during the first quarter of a new model's production is for the OLD model—not the new model. The new model will not officially go on sale until it has been in production for one calendar quarter to build inventories.

Maximum: Highest model number reported to be available from the R & D Department.  
Minimum: Same model number as was produced last quarter. Once a new model has been placed in production, an earlier model may not be reinstated.  
Limits: 1 to 12

Model/Quality	
Model	# 1
Quality	# 2

### Model Quality

When a new model is introduced, its quality level must be specified. You may choose from three levels of quality:

- (1) deluxe
- (2) standard
- (3) economy

The quality level of a model is determined when the model is introduced and may not be changed during the production run. The choice of quality level is yours. Quality level is determined by manufacturing tolerances and the quality and quantity of raw materials used. Features of the product are important, too. Deluxe quality may signify extra features that are not available in a standard quality model, and economy quality may signify fewer features than for the standard model. It is not related to whatever you may have spent on research and development in order to bring the new model to market. When introducing a new product, enter the desired quality level in the Quality space on the decision form. If you continue to produce the same model as last quarter, you must also continue the same quality level.

Limits: 1, 2 or 3

May be changed only when introducing a new model

### Sales Office Orders

This is a very important decision variable which **must** be used to obtain goods for your firm's sales offices to sell. If a sales office does not place an order with your firm's headquarters, it will only be able to sell the stock it has on hand in inventory. **The product is not shipped to an area unless an order is placed by a sales office.** The only exception is for a sales office in an area which also has a producing plant. The sales office may obtain additional stock from the plant in its area if the plant still has inventory remaining after filling all of the sales orders from the other sales offices.

Maximum: Highest model number reported to be available from the R & D Department.  
Minimum: Same model number as was produced last quarter. Once a new model has been placed in production, an earlier model may not be reinstated.  
Limits: 1 to 12

Model/Quality	
Model	# 1
Quality	# 2

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Limits: 1, 2 or 3

May be changed only when introducing a new model

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**IMPORTANT NOTE**

**Customer orders** refer to the actual customer demand by market intermediaries (wholesalers, large retailers, etc.) for your product in each market area. They are the orders which customers place with your sales offices for the purchase of your product. Your firm does not sell to the end consumer.

The sales office in each area must submit an order to your firm's headquarters each quarter. Your firm (by way of the BPG computer program) will then determine how many units of product are shipped and from what locations, according to a pre-approved policy. Units not sold during the quarter in which they are purchased will be placed in inventory. Inventory carried over from one quarter to the next by a sales office is stored in a public warehouse. Sales offices in an area which also has a manufacturing plant may store up to 300,000 units in the plant's warehouse facility.

Your firm has developed a set of policies to guide product allocation. The allocation priorities are as follows:

1. Goods held in inventory by a sales office **will not be shipped** to another area or country but will be held for sale in the area where they already are located.
2. Sales office orders will be filled only from your firm's current-quarter production. Shipments will be allocated to fill sales office orders **before** filling any additional customer orders. These shipments include those to **all** sales offices, both in areas with manufacturing plants and in areas without a plant. For sales offices in producing areas, "shipment" constitutes setting goods aside in the warehouse area of the plant for sale to local area customers.
3. If a plant's production exceeds the number of units in the local sales office order, the excess production will be made available for shipment to other area sales offices **after** the local sales office order has been completely filled (not customer orders). In other words, sales offices in producing areas are given priority and will have their total order filled (given sufficient production in the area), even if there is not enough production to fill orders of other sales offices.
4. If an area's production is less than the local sales office order, the shortage will be entered in a request for shipment from a plant in another area (if there is one).
5. Then, goods available for shipment from all plants are matched with unfilled sales office orders from all areas. If goods available for shipment equal or exceed orders from sales offices in non-producing areas plus unfilled orders from areas producing less than their sales office has ordered, all orders are filled. Otherwise, they are pro-rated according to the size of the orders.

6. If goods are available for shipment from more than one plant, sales office orders are filled first from non-home area plants beginning with Sereno, then from domestic non-home areas and finally from the home area.

The bottom line is that the sales office in each market area must manage its own inventory. Failing to do so may result in stockouts even though other areas have inventory left over.

Limits: 0 to 999 (in thousands of units)

	Sales Office Orders (000s)
Area 1	# 87
Area 2	# 75
Area 3	# 75
Sereno	# 75

### Finance Decisions

Surplus subsidiary funds are paid to your parent firm in the form of dividends to the parent corporation for investment or reallocation to other <sup>parent</sup> expenditures.

As a matter of company policy, all external financing, including bank loans, will be undertaken only by the parent company. Financing needs of subsidiaries (including Sereno) will be filled by the parent company purchasing additional common stock in the wholly-owned subsidiaries. Stock purchased in the Sereno subsidiary will be paid for in dollars, which will be converted to local currency at the exchange rate in effect at the time of the purchase.

Financial strategy is discussed in Chapter 9, along with additional information about each of the finance decisions and the costs associated with them. Figure 2-3 at the end of this chapter summarizes the initial costs and expenses of *The Business Policy Game*.

#### Bank Loan prestamos

If your firm wishes to take out a short-term bank loan by drawing against your \$2.5 million line of credit, enter the amount desired (in thousands of dollars) under Bank Loan on the decision form. Short-term loans are made for a period of one quarter, and repayment is automatic during the quarter following that in which the loan is made. The annual interest rate will be the

short-term rate that is available during that quarter to a company with your credit standing. Your account will automatically be charged one-fourth of the annual rate during the quarter in which the loan is outstanding.

Bank loans are secured by inventory and receivables, and may not exceed 50 percent of the value of receivables plus inventory at the end of the previous quarter. Your line of credit requires an annual cleanup, so a loan request will be denied if there has been a loan outstanding during each of the past **three** consecutive quarters.

Bank loans are available **only** to the parent company.

Maximum loan: 50 percent of receivables plus inventory

Maximum loan: 0 if a loan was outstanding in each of the previous three quarters

Limits: 0 to 2500 (in thousands of dollars)

Finance (000s)	
Bank Loan	\$
Bond Issue	\$
Stock Issue	#
Dividends	\$
Time CDs	\$ 1000

### Sale or Redemption of Bonds

1. Bond issue<sup>emission</sup>. Your parent company may incur additional long-term debt by issuing new bonds in amounts that are **multiples** of \$1,000,000. New bond issues are callable ten-year bonds carrying the long-term rate of interest that will be available to a company with your credit rating during the quarter of issue. In the financial markets, there is some uncertainty in planning a bond issue regarding the actual rate that will be available at the time of issue. This amount isn't normally known very much in advance. In the simulation, the investment banker doesn't fix the rate until the first day of the quarter in which the bonds are to be sold.

Bonds must be secured by plant and equipment. The value of existing bonds plus new bonds to be issued may not exceed 75 percent of net fixed assets. Furthermore, your investment banker will consider an issue too risky to underwrite if the existing bonds, plus new bonds to be issued, exceed 50 percent of total equity (consisting of the previous quarter's total equity plus the proceeds of new shares to be sold simultaneously with the bonds—see "Sale of Common Stock" on the next page). Enter the amount of new bonds to be sold (in thousands of dollars) on the decision form under Bond Issue. If you decide to issue \$1,000,000 worth of bonds, enter 1000

on the decision form. Do **not** include commas in your entry. Bonds can be issued only by the parent company.

Maximum issue: 50 percent of equity or 75 percent of net fixed assets, whichever is less  
Limits: 0 to 9000 (in thousands of dollars), in million dollar lots

2. Bond redemption. Bonds that are outstanding may be called and redeemed in amounts that are multiples of \$100,000 except that there is a restriction in the bond indenture that prohibits the redemption of more than \$500,000 of the face amount of bonds in any one quarter. A call premium is required, amounting to 5 percent of the face value of the repurchased bonds. If your firm has more than one bond issue outstanding, the bonds carrying the highest interest rate will be redeemed first. If bonds are to be redeemed, enter the face amount of the bonds for which redemption is desired (in thousands of dollars), **preceded by a minus sign**, under Bond Issue on the decision form. If you decide to redeem \$500,000 worth of bonds, for example, enter -500 on the decision form. The 5 percent call premium will be charged automatically. Bonds can be redeemed only by the parent company.

Maximum redemption: Total amount of bonds outstanding (if less than \$500,000)  
Limits: -500 to 0 (in thousands of dollars) in hundred thousand dollar lots

### Sale of Common Stock

actions

1. Stock issue. Your parent firm may issue new shares of common stock through an investment banker in multiples of 100,000 shares, provided the new issue will be large enough to raise at least **\$1 million**. The investment banker will make a firm offer at any time of a price that will be determined by the following formula:

$$\text{Issue price} = \frac{(\text{shares outstanding}) \times (\text{latest market price})}{(\text{shares outstanding}) + (\text{shares to be issued})}$$

If your firm's credit rating is 2, this is the issue price. If your firm's credit rating is 3, subtract 10 percent of the formula value from the issue price. If your credit rating is 1, add 10 percent.

Enter the number of new shares to be issued (in thousands of shares) on the decision form under Stock Issue. If your firm decides to issue 4,000,000 shares of stock, for example, enter 4000 on the decision form. Do **not** include commas in your entry.

External sale (or repurchase) of common stock will be undertaken only by your parent company, in thousands of dollars. Subsidiaries may issue stock only to the parent company, and only to meet financing requirements due to working capital shortages, plant construction or purchase and installation of new equipment. Sales of subsidiary stock will occur automatically when additional funds are required, and no decision entry is necessary.

Minimum issue: Enough shares to raise \$1 million  
 Limits: 0 to 9000 (in thousands of shares) in 100,000-share blocks

2. Stock repurchase. Shares of your parent firm's common stock may be repurchased by placing a purchase order with the firm's stockbroker. The shares will be purchased at a price that is 10 percent above the market price reported at the end of the previous quarter. Stock is repurchased by entering the number of shares to be repurchased, preceded by a minus sign, in the Stock Issue section of the decision form. Repurchase must be made in multiples of 100,000 shares. If your firm decides to repurchase 500,000 shares of stock during the current quarter, for example, enter -500 on the decision form. Your corporate charter requires that there be at least 3 million shares outstanding so repurchases are limited to an amount that would leave at least 3 million shares after the repurchase. Shares may not be repurchased if the balance of the Accumulated Earnings account is not sufficient to fund the repurchase.

Maximum repurchase: to leave at least 3 million shares outstanding  
 Limits: -500 to 0 (in thousands of shares) in 100,000 share blocks

### Dividends

Cash dividends may be paid by your parent company to external stockholders. A restrictive bond covenant, however, provides that the dividends paid in any quarter, taken together with dividends paid in the previous three quarters, may not exceed the total amount of earnings in the previous four quarters of operations. In addition, the board of directors of your company has decided that even if all bonds should be repurchased, this restriction on dividend policy would be maintained. Thus, if total earnings in the previous four quarters amounted to \$200,000 and dividends already paid in the previous three quarters amounted to \$190,000, the maximum dividend that could be paid in the current quarter would amount to \$10,000. Enter the amount of cash dividends to be paid (in thousands of dollars) under Dividends on the decision form. If your firm decided to declare the permissible amount of \$10,000 in dividends in the above example, you would enter 10 on the decision form. Dividends may not be declared if the Accumulated Earnings account on the balance sheet has a negative balance.

Subsidiaries may declare dividends only to the parent company (these are not recorded on the decision form but paid automatically when funds are eligible to be transferred).

Maximum: Net profits earned in the last 4 quarters minus dividends paid in the last 3 quarters  
 Maximum: 0, if retained earnings are negative  
 Limits: 0 to 9999 (in thousands of dollars)



### Certificates of Deposit

Three-month time Certificates of Deposit (CDs) may be purchased by your parent firm in multiples of one hundred thousand dollars. Purchases may be made at the beginning of any quarter. CDs mature at the beginning of the next quarter, three months later. Interest will be earned on deposits at the rate reported in the industry report for 3-month time CDs during the quarter in which they will be invested. Interest (but not principal) will be credited to your account on the last day of the quarter in which the deposit is made (and thus is available to meet that quarter's expenses), with quarterly interest calculated at one-fourth of the annual rate.

#### **IMPORTANT NOTE**

While interest is credited on the last day of the quarter that the deposit is made, the funds from the deposit itself are not available until the next day—the first day of the subsequent quarter. Thus, if your firm should need emergency cash during the quarter in which the funds are invested in CDs, the funds will not be available to meet the need.

To purchase time CDs, enter the amount of the purchase in thousands of dollars on the decision form under Time CDs. If your firm decides to purchase \$400,000 worth of CDs, for example, enter 400 on the decision form. Do not include commas in your entry. Repayment of the CDs, as well as crediting your account with earned interest, will be done automatically by the bank.

Limits: 0 to 9900 (in thousands of dollars), in hundred thousand dollar lots

### **Production Decisions**

Production planning, scheduling and costs are discussed in Chapter 7, along with additional information about each of the production decisions and their associated costs. Production capacity changes are discussed in Chapter 8. Figure 2-3 at the end of this chapter summarizes the initial costs and expenses of *The Business Policy Game*.

### Research and Development Expenditures

Your parent firm is responsible for all research and development work. Research and development expenditures fund your R & D department which develops new models of your product. The department also is involved in adapting the latest manufacturing techniques for use in producing the new products. Enter the amount (in thousands of dollars) to be spent for R & D.

Limits: 1 to 999 (in thousands of dollars)

R&D/Training (home currency)	
R&D	\$ 72
Trng	\$ 68

### Production Employee Training

Training of production employees enhances employee productivity by upgrading skills and preparing individuals for more complex job assignments. It also helps maintain current productive efficiency by sharpening ongoing production processes. Thus, training of production employees can lead to savings in unit labor costs because the employees are more productive. Savings in unit materials costs may result because of more efficient materials handling and less materials wastage.

The employee training costs are completely funded by the parent company and are paid in dollars, even though some of the training may take place in manufacturing facilities located in other domestic market areas or in Sereno.

Enter the amount to be spent (in thousands of dollars) on production training.

Limits: 1 to 999 (in thousands of dollars)

### Production Scheduling

*program*

At the beginning of Year 3, a manufacturing plant with six production lines is available in your home area. No production facilities are currently available in the other areas. However, a plant may be built in any other area using the area's working capital and additional funding, if required, from the parent company. There are no restrictions on foreign investment of firms producing low cost durable products in Sereno.

On each quarterly decision form, all available production lines in each plant and for each shift must either be scheduled for production, idled or deactivated. See Chapter 7 for certain restrictions on production scheduling and temporary layoffs.

1. Schedule production lines and hours. Production lines to be scheduled for first-shift operation should be entered on the decision form for the area in which they are located. Enter the number of production lines that are to be producing (not more than the maximum available) and the number of hours that are to be scheduled per week (from 40 to 48). Make sure your entry is for the area or areas in which you have a plant. The decision-entry program will not accept an entry for an area where no production lines are available.

**IMPORTANT NOTE**

If new lines are desired, an entry **must** be made under New Lines one quarter before production may be scheduled. See paragraph 1 under "Investment in Production Facilities and Equipment" below.

Limits: Lines: 0 to maximum number of lines available  
Hours: 0, 40 to 48

Note: Lines scheduled + lines idled + lines deactivated must be equal to the number of lines available.

2. Second shift. Production on a second-shift operation is possible only in a firm's home-area plant (see Chapter 7). Enter the number of production lines that will be producing on the second shift and the number of hours that are to be scheduled per week (see paragraph 1 on the previous page).

Limits, Lines: 0 to maximum number of lines available in home area

Note: Lines scheduled + lines idled + lines deactivated must be equal to the number of lines available.

Limits, Hours: 0, 40 to 48

	Sales Office Orders (000s)	Production Schedule	
		Lines	Hours
Area 1	# 87	# 6	# 40
Area 2	# 75	#	#
Area 3	# 75	#	#
Sereno	# 75	#	#
2nd Shift		#	#

**IMPORTANT NOTE**

If new lines are desired, an entry **must** be made under New Lines one quarter before production may be scheduled. See paragraph 1 under "Investment in Production Facilities and Equipment" below.

Limits: Lines: 0 to maximum number of lines available  
Hours: 0, 40 to 48

Note: Lines scheduled + lines idled + lines deactivated must be equal to the number of lines available.

2. Second shift. Production on a second-shift operation is possible only in a firm's home-area plant (see Chapter 7). Enter the number of production lines that will be producing on the second shift and the number of hours that are to be scheduled per week (see paragraph 1 on the previous page).

Limits, Lines: 0 to maximum number of lines available in home area

Note: Lines scheduled + lines idled + lines deactivated must be equal to the number of lines available.

Limits, Hours: 0, 40 to 48

	Sales Office Orders (000s)	Production Schedule	
		Lines	Hours
Area 1	# 87	# 6	# 40
Area 2	# 75	#	#
Area 3	# 75	#	#
Sereno	# 75	#	#
2nd Shift		#	#

**IMPORTANT NOTE**

Second-shift lines are not available and may not be scheduled until workers for the shift have been trained according to paragraph 2 under "Investment in Production Facilities and Equipment" below. An entry **must** be made under New Lines in the Construction section of the form one quarter before second-shift lines may be scheduled for production.

Capacity Adjustment.

1. Temporary Layoff (for one quarter only). Production lines that are available but not scheduled for production, and have not been deactivated, must be idled by laying off employees. Enter the number of lines which you plan to idle through layoffs on the decision form under Capacity Adjustment-Layoff. Be sure that all lines (both first-shift lines and second-shift lines) are accounted for. If you idle a first-shift line, a corresponding second-shift line must be idled or deactivated unless there remain at least as many first-shift lines as second-shift lines. A second-shift line may not continue operating unless there is a corresponding line on the first shift. Check to be sure that your entry is for the area in which you want to idle lines.

Limits: 0 to maximum number of lines available

Note: Lines scheduled + lines idled + lines deactivated must be equal to the number of lines available.

2. Deactivate first-shift lines. Any line that is available for production may be deactivated and removed from production until such time as you choose to reactivate the line. Enter the number of lines that you desire to deactivate in the appropriate area on the decision form under Capacity Adjustment-Deactivate. Deactivated lines may not be scheduled for production until they have been reactivated (see paragraph 4 on the next page)

Limits: 0 to the number of lines available for production

Note: Lines scheduled + lines idled + lines deactivated must be equal to the number of lines available.

3. Deactivate second shift. Production lines available for second-shift production may be deactivated by entering the number of lines you desire to deactivate under the Capacity Adjustment-Deactivate column for the 2nd Shift area on the decision form. Second-shift-lines must be deactivated if the corresponding lines on the first shift are deactivated.

Limits: 0 to number of second-shift lines available

Note: Lines scheduled + lines idled + lines deactivated must be equal to the number of lines available.

	Sales Office Orders	Production Schedule		Capacity Adjustment		
	(000s)	Lines	Hours	Layoff	Deactivate	Reactivate
Area 1	# 87	# 6	# 40	#	#	#
Area 2	# 75	#	#	#	#	#
Area 3	# 75	#	#	#	#	#
Sereno	# 75	#	#	#	#	#
2nd Shift		#	#	#	#	#

4. Reactivate deactivated lines. Production lines that have been previously deactivated may be reactivated and made available for production. In order to reactivate a second-shift line a first-shift line must be available or in the process of being reactivated. Both first and second-shift lines may be reactivated at the same time. The number of lines available for reactivation, if any, are shown in the Production Capacity Status section of your Operating Information Report.

PRODUCTION CAPACITY STATUS				
	Merica Area 1	Merica Area 2	Merica Area 3	Sereno
Production Lines Currently Producing	6	0	0	0
Space Available for New Lines	2	0	0	0
Lines Available for Reactivation	2	0	0	0
Second-Shift Lines for Reactivation	2	0	0	0

Reactivation requires one quarter of preparation before a line may be scheduled for production. Enter the number of lines to be reactivated under the appropriate area on the decision form. Lines may not be scheduled for production until the following quarter.

Limits: 0 to number of lines previously deactivated

Note: A second-shift line must be supported by a first-shift line. You may not reactivate a second-shift line unless you have a supporting first-shift line either available, being built or reactivated.

#### Investment in Production Facilities and Equipment

Investment in new facilities or equipment may take the form of construction of new lines in existing plants, training workers for second-shift operation, constructing a new addition to an existing plant or constructing a new plant. For details on these alternatives, see Chapter 8.

1. New First-Shift Lines. Plant space that is available for new line construction is reported in the Production Capacity Status section of your Operating Information Report.

PRODUCTION CAPACITY STATUS				
	Merica Area 1	Merica Area 2	Merica Area 3	Sereno
Production Lines Currently Producing	6	0	0	0
Space Available for New Lines	2	0	0	0

Construction and preparation of new lines requires one quarter before the lines become available for production. In Year 3, Quarter 1, space is available to add as many as two new lines in the existing home area plant. If a new addition or a new plant is under construction, the construction of new production lines may be undertaken as early as one quarter before completion of the new plant capacity (see paragraphs 3 and 4, below). In this way, production lines may be made available for production as soon as the new addition or new plant is completed.

Enter the number of new lines to be added in the area where a plant with additional capacity is located. After the construction has begun, no further entry is necessary (that is, enter 0 in subsequent quarters) unless you want to build additional lines. Positive entries in subsequent quarters will result in starting **additional** new lines at that time (if space is available). When ready for production, and not before, new lines must be scheduled for production, idled or deactivated.

Limits: 0 to space available

	Sales Office Orders (000s)	Construction		
		New Lines	New Add'n	New Plant
Area 1	# 87	#	#	#
Area 2	# 75	#	#	#
Area 3	# 75	#	#	#
Sereno	# 75	#	#	#
2nd Shift	#		← ← ← ←	

2. New Second-Shift Lines. In a **home area plant**, second-shift operations can be added to producing first-shift lines. You may also add second-shift lines at the time you build first-shift lines. The key is that there must always be a first-shift line to support each second-shift line. To add second-shift lines, enter the number of second-shift lines you wish to add on the decision form in the New Lines column under 2nd Shift. The line(s) will be available for production during the **next** quarter.

Limits: 0 to number of 1st-shift lines operating in home area

3. New Additions. Additions may be constructed by adding new structures to existing plants. Capacity may be added in units of **two** production lines per addition unless the maximum plant size of twelve lines already has been reached. Two quarters are required to construct an addition. An addition may be added to a plant under construction if it is not started prior to the last 2 quarters of plant construction. To begin construction, enter 2, the number of lines of capacity, under New Add'n on the decision form in the area in which you wish to construct the new lines.

After construction has begun, no further entries are necessary (that is, enter 0 in subsequent quarters unless space is available within the 12-line maximum and you wish to begin construction of another addition). If you wish, you may begin construction of production lines (paragraph 1, above) so that the lines will be available for production when the new addition is completed. New line construction may be started as early as one quarter after construction of the new addition is begun.

Limits: 0 or 2 lines (to a maximum of 12 lines in a plant)

4. New Plant. To begin construction of a new plant, enter the number of lines of capacity that are desired (2, 4, 6, 8 or 10) in the area in which the new plant is to be located. Only one plant per company is permitted in each of the four market areas. It takes three quarters to complete the construction of a new plant. After construction has begun, no further entry is required except to begin construction of new lines (see paragraph 1 on the previous page) prior to the start of production. New production lines may be started during the third quarter of plant construction.

Limits: 0 in home area; 0, 2, 4, 6, 8, 10 lines in other areas

New plants may only be built in areas where there is no existing plant.

5. Plant Closing. To close a plant in an area, enter -1 under new plant construction for the area. See Closing a Plant in Chapter 8 for details on plant closing. This is an important decision and should be considered carefully before it is implemented. If you enter -1 to close a plant, you also must deactivate all available production lines at the same time. The plant and production equipment then will be sold.

Limits: 0 or -1, -1 closes the plant in the area

Once a plant is closed, it will be sold and may not be reopened! A new plant must be built in order to produce again in the same area.



## Entering Decisions & Printing Reports

You may be asked to use a computer to enter your decisions directly, saving them on a floppy disk or on a hard disk (which may be part of a PC network), and to print your firm's reports. These options are explained in Appendix A, "Installing and Using the BPG Computer Program."

Your decision set will be stored in a file on the disk and saved for use when the simulation program is run by the administrator. If your decision set is stored on a floppy disk, you will need to submit your disk to the simulation administrator prior to the time the simulation is to be run.

Before entering your decision on the computer, the following tasks should be performed:

1. Complete the decision form. The decision form always should be completed before entering decisions on the computer. The decision form helps to organize your firm's decision set in the order in which the values will be entered. The form centralizes the decision variables in one place, thus easing the chore of checking for decision completeness. The form also serves as the original record of your team's decision. It is recommended that you turn in a copy of your decision form (if you use floppy disks) in case the computer has trouble reading your disk.
2. Enter and save the decision file. Your firm's decision set will be stored on magnetic disk. The simulation administrator will tell you the type of computer system, the type of disk you will use (floppy or hard) and how to access the disk. Appendix A contains information about installing and running the programs on the Player's Program Disk. If you are using an IBM or compatible computer system, read the first section, titled "IBM and Compatible Users." If you are using a Macintosh computer system, skip to the second section labeled "Macintosh Users."

### Summary

Steps for entering decisions and printing output.

1. Complete Decision Form
2. Run BPG computer program
- 3a. Print Reports      3b. Enter New Decisions      3c. Change Decisions
4. Quit

FIGURE 2-2  
QUICK-REFERENCE GUIDE  
DECISION-VARIABLE DEFINITIONS AND LIMITS

<p style="text-align: center;"><b>PRICE</b> Amount to be charged for your product</p> <p>Maximum change, Areas 1 to 3: 30 percent Maximum change, Sereno: 40 percent</p> <p>Limits, Areas 1 to 3: 1.00 to 99.99 (dollars and cents) Limits, Sereno: 1 to 99999 (pesos) If there is no sales office, price must be 0</p>	<p style="text-align: center;"><b>ADVERTISING</b> Amount to be spent for advertising in each marketing area</p> <p>Limits, Areas 1 to 3: 0 to 999 (thousands of dollars) Limits, Sereno: 0 to 9999999 (thousands of pesos)</p>
<p style="text-align: center;"><b>HIRE NEW SALESPeOPLE</b> Number of new salespeople to be hired.</p> <p>Those hired now will be in training for one quarter, then become active salespeople in the following quarter.</p> <p>Limits: 0 to 99</p>	<p style="text-align: center;"><b>TRANSFER OR DISCHARGE SALESPeOPLE</b> Number to be transferred or discharged</p> <p>Negative values: discharge or transfer out. Positive values: transfer in. A negative balance will be discharged.</p> <p>Maximum: Number available minus 1</p> <p>Limits: -99 to 99</p>
<p style="text-align: center;"><b>CLOSING A SALES OFFICE</b> Transfer out or discharge of all salespeople will cause the sales office in that area to be closed and executives discharged.</p> <p>Maximum negative entry: Number of active salespeople</p> <p>Limits: -99 to 0</p>	<p style="text-align: center;"><b>OPENING (REOPENING) A SALES OFFICE</b> Transfer in of one or more salespeople to an area where there is no sales office will cause an office to be built and executives to be hired.</p> <p>Limits: 0 to 99</p>
<p style="text-align: center;"><b>COMMISSION</b> Commission per unit to be paid to each sales person</p> <p>Limits, Areas 1 to 3: 1 to 99 (cents per unit) Limits, Sereno: 1 to 99999 (centavos per unit) If there is no sales office in an area, the value must be 0.</p>	<p style="text-align: center;"><b>SALARY</b> Quarterly salary to be paid to each salesperson</p> <p>Limits, Areas 1 to 3: 1 to 9999 (dollars) Limits, Sereno: 1 to 9999999 (pesos) If there is no sales office in an area, the value must be 0.</p>
<p style="text-align: center;"><b>BANK LOAN</b> Short-term loan to parent company, for one quarter.</p> <p>Maximum: 50% of consolidated receivables plus inventory Maximum: 0, if loan outstanding in each of the last 3 quarters.</p> <p>Limits: 0 to 2500 (in thousands of dollars)</p>	<p style="text-align: center;"><b>BOND ISSUE</b> Sold in million-dollar lots by parent company</p> <p>Positive numbers: sell new 10-year bonds Maximum: the lesser of 50% of equity or 75% of net fixed assets</p> <p>Limits: 0 to 9000 (in thousands of dollars)</p>
<p style="text-align: center;"><b>BOND REPURCHASE</b> Redeem outstanding bonds in lots of \$100,000</p> <p>Negative numbers: amount of bonds to repurchase.</p> <p>Limits: -500 to 0 (in thousands of dollars)</p>	<p style="text-align: center;"><b>STOCK ISSUE</b> Sold in 100,000-share lots by parent company</p> <p>Positive numbers: Number of common shares to be issued, Minimum issue: enough shares to total \$1,000,000</p> <p>Limits: 0 to 9000 (in thousands of shares)</p>
<p style="text-align: center;"><b>STOCK REPURCHASE</b> Repurchased in lots of 100,000 shares</p> <p>Negative numbers: Number of shares to repurchase Maximum repurchase: to leave at least 3 million shares with positive accumulated retained earnings.</p> <p>Limits: -500 to 0 (in thousands of shares)</p>	<p style="text-align: center;"><b>DIVIDENDS</b> Declared and paid by parent company Amount to pay external shareholders from profits</p> <p>Maximum: Consolidated net income in last 4 quarters, minus dividends paid in last 3 quarters.</p> <p>Limits: 0 to 9999 (in thousands of dollars)</p>
<p style="text-align: center;"><b>TIME CERTIFICATES OF DEPOSIT (CDs)</b> Short-term 3-month investments by parent company, purchased in \$100,000 lots.</p> <p>Limits: 0 to 9900 (in thousands of dollars)</p>	<p style="text-align: center;"><b>PRODUCT RESEARCH &amp; DEVELOPMENT</b> Amount for parent company to spend on developing new models</p> <p>Limits: 1 to 999 (in thousands of dollars)</p>

(Continued on next page)

**FIGURE 2-2 (Continued)**  
**QUICK-REFERENCE GUIDE**  
**DECISION-VARIABLE DEFINITIONS AND LIMITS**

<p><b>TRAINING OF EXISTING PRODUCTION EMPLOYEES</b>            Amount for parent company to spend on training of existing production employees (to reduce production costs).             Limits: 1 to 999 (in thousands of dollars)</p>	<p><b>MODEL NUMBER</b>            For production this quarter. Goes on sale next quarter.             Minimum: Same model number as last quarter            Maximum: Highest number reported to be available             Limits: 1 to 12</p>
<p><b>QUALITY</b> (of product)            May be changed only on introduction of a new model.             Enter 1 for deluxe quality            Enter 2 for standard quality            Enter 3 for economy quality</p>	<p><b>SALES OFFICE ORDERS</b>            Number of units to be shipped to each sales office. Units will be held there for resale. Unsold units will be placed in inventory.             Limits: 0 to 999 (in thousands of units)</p>
<p><b>SCHEDULING PRODUCTION LINES</b> (First Shift)            Number of lines scheduled for production.             Any lines not scheduled must be idled or deactivated. New lines must be purchased and installed one quarter before they may be scheduled.             Limits: 0 to number of lines available</p>	<p><b>SCHEDULING PRODUCTION HOURS</b> (First Shift)            Number of hours to schedule production per week.             Number of lines must also be scheduled.             Limits: 0, 40 to 48 (hours)</p>
<p><b>SECOND-SHIFT LINES</b> (Home area plant only)            Number of lines scheduled for second shift             First-shift lines also must be scheduled. New lines must be prepared one quarter before production may be scheduled.             Limits: 0 to number of first-shift lines scheduled for production.</p>	<p><b>SECOND-SHIFT HOURS</b> (Home area plant only)            Number of hours scheduled per week             Number of lines must also be scheduled.             Limits: 0, 40 to 48</p>
<p><b>TEMPORARY LAYOFF-IDLED</b> (one quarter only)            Number of lines to shut down for temporary layoff of employees.             Lines subject to temporary layoff are automatically available for production one quarter later.             Limits: 0 to number of lines available for production            Lines that are available for production but not scheduled must be idled (temporary layoff) or deactivated</p>	<p><b>DEACTIVATE PRODUCTION LINES</b> (Permanent Layoff)            Number of lines to be deactivated (and not available for production until reactivated).             If a plant is closed all lines must be deactivated, and none will be available for reactivation later.             Limits: 0 to number of lines available            Lines not scheduled for production must be idled or deactivated</p>
<p><b>REACTIVATE PRODUCTION LINES</b>            Number of previously deactivated 1st or 2nd-shift lines to be prepared for production next quarter.             1st-shift lines must be available in order to reactivate 2nd-shift lines. 1st and 2nd-shift lines may be reactivated at the same time.             Limits: 0 to number of previously deactivated lines</p>	<p><b>NEW PRODUCTION LINES</b>            Number of new lines to be purchased and installed, ready to begin production the following quarter             1st-shift lines must be available to install new 2nd-shift lines.             Limits (1st shift): 0 to space reported as available            Limits (2nd shift): 0 to number of 1st-shift lines</p>
<p><b>NEW ADDITION</b>            Number of lines capacity to add to the plant             Construction takes 2 quarters. This is an addition to the building in which new lines may be installed. Only one new 2-line addition may be started in any quarter, but another could be started the following quarter so that two additions are under construction at the same time. New lines must be installed separately during the last quarter of construction (or later).             Limits: 0 or 2 (to a maximum capacity of 12 lines)</p>	<p><b>NEW PLANT</b>            Number of lines capacity for a new plant to be constructed             May only be built in areas where there is no existing plant. This is a new building in which production lines may be installed during the last quarter of construction (or later). New lines must be installed separately. New additions may be built later, to a maximum capacity of 12 lines in any area.             An entry of -1 causes the plant to be closed and sold for 90% of book value. All lines must then be deactivated at the same time. No further production in such a plant is possible.            Limits: -1 (to close plant)            0, 2, 4, 6, 8 or 10 (number of lines capacity)</p>

FIGURE 2-3

**SUMMARY OF THE BUSINESS POLICY GAME COSTS — Year 3, Quarter 1**  
(Costs change over time because of inflation and changes made by management.)

<b>Marketing Expenses</b>	
Salespeople	Salaries and commissions: \$3,000 or Ps 8971 per quarter + 20 cents or 60 centavos per unit
	Training: \$10,000 or Ps 36,000 per trainee
	Moving expense: \$5,000 or Ps 30,000 per salesperson transferred
	Severance expense: \$5,000 or Ps 30,000 per salesperson fired
Inventory storage:	In-plant warehouse: 10 cents or Ps 0.60 per unit up to 300,000 units Public warehouse: 30 cents or Ps 1.80 per unit
Transportation Expense:	
<u>Shipments from:</u>	<u>To:</u> <span style="float: right;">Cost per unit in dollars <u>convert to pesos at current rates</u></span>
Sales office or plant	Customer in same area \$0.10
Plant (Merica)	Sales office in another Merica area \$0.60
Plant (Merica)	Sereno sales office \$0.90
Plant (Sereno)	Merica sales office \$0.90
General Selling Expense:	Each Merica area: \$37,500 + \$4,000 x number of salespeople + \$0.20 x number of units sold Sereno: Ps 225,000 + Ps 24,000 x number of salespeople + Ps 1.20 x number of units sold
<b>Production Costs</b>	
Labor costs/line for Model 1, Quality 2 (other models as reported):	<u>Standard costs/unit</u>
Straight time: \$288 or Ps 890 per hour for Model 1	Labor \$2.88 Ps 8.90
Second shift: 110% of straight time	Materials 1.23 5.72
Overtime: 150% of straight time (200% in Sereno)	Maintenance 0.25 1.50
	Total (Qual 2) \$4.36 Ps 16.12
Maintenance:	(Qual 1) + 10% (Qual 3) - 10%
Layoff standby cost:	\$52,000 or Ps 312,000 per quarter per line
Deactivation cost:	\$100,000 or Ps 600,000 per line
Reactivation cost:	\$50,000 or Ps 300,000 per line
Construction Costs:	
New 2nd Shift:	\$100,000 per line worker training (home area only)
New line:	\$500,000 or Ps 3,000,000 per line + Worker training: \$100,000 or Ps 600,000 per line
New addition to plant:	\$900,000 or Ps 5,400,000 per 2-line addition
New plant construction:	2 lines capacity \$1,200,000 or Ps 7,200,000
	4 lines capacity \$1,900,000 or Ps 11,400,000
	6 lines capacity: \$2,600,000 or Ps 15,600,000
	8 lines capacity: \$3,300,000 or Ps 19,800,000
	10 lines capacity \$4,000,000 or Ps 24,000,000
<b>Finance Expenses</b>	
Bank loan:	Interest at the short-term interest rate during the quarter the loan is issued
Bonds:	Existing bonds, at 10% annual interest, new bonds at long term interest rate in quarter of issue Interest paid quarterly. Bonds are callable at a 5 percent call premium
Common stock:	Issue price determined by formula in text
Income tax:	39% of net income; paid quarterly
Value Added Tax in Sereno:	10% of net sales to customers, paid quarterly
<b>Other Expenses</b>	
Executives' salaries:	\$50,000 or Ps 300,000 per manufacturing plant, \$25,000 or Ps 150,000 per sales office, each quarter
Plant depreciation:	\$26,000 per quarter (existing plant) Straight-line basis over 31.5 years, no salvage value (0.7937% per quarter)
Equipment depreciation:	\$107,000 in Year 2, Quarter 4 (existing equipment) Straight-line basis over 7 years, no salvage value (3.5714% per quarter)